

AMENDMENT TO THE CLAIMS

Please amend the claims without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents, as follows.

In the Claims:

1. (Currently amended) A method of preparing a titania composite membrane for separating water/alcohol mixtures, the method comprising the steps of:

- (a) modifying macropores of a porous support by sequentially treating the macropores with silica xerogel and γ -alumina sol in this order;
- (b) forming a titania surface layer according to a sol-gel process by coating said modified porous surface with titania sol; and
- (c) drying said membrane at 20-30°C and relative humidity of 50-70% followed by calcining said membrane at 250-400°C

wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m²/g, a permeability for water of 25-520 g/m²-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250°C.

2. (Original) The method of claim 1, wherein said porous support is a porous metal support having a pore size of 1-5 μ m.

3. (Original) The method of claim 1, wherein the step (a) comprises a first modification of the macropores of said porous support by packing silica xerogel with a press and a second modification of the surface with γ -alumina sol according to a soaking-rolling process.

4. (Original) The method of claim 1, wherein said titania sol is prepared by refluxing titanium tetraalkoxide in a mixture of water, alcohol and hydrochloric acid.

5. (Original) The method of claim 1, wherein the step (b) is performed by coating the modified surface with titania sol according to a soaking-rolling process.

6. (Cancelled)

7. (Currently amended) The membrane of claim 1 ~~claim-6~~, wherein said permeability for water is 25-420 g/m²-h and said selectivity for water is 10-140 in water/ethanol mixtures at 250°C.
8. (Currently amended) The membrane of claim 1 ~~claim-6~~, wherein said permeability for water is 50-520 g/m²-h and said selectivity for water of 30-400 in water/propanol mixtures at 250°C.
9. (Previously presented) The titania composite membrane for separating water/alcohol mixtures prepared according to claim 2, wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m²/g, a permeability for water of 25-520 g/m²-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250° C.
10. (Previously presented) The titania composite membrane for separating water/alcohol mixtures prepared according to claim 3, wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m²/g, a permeability for water of 25-520 g/m²-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250° C.
11. (Previously presented) The titania composite membrane for separating water/alcohol mixtures prepared according to claim 4, wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m²/g, a permeability for water of 25-520 g/m²-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250° C.
12. (Previously presented) The titania composite membrane for separating water/alcohol mixtures prepared according to claim 5, wherein said membrane has a pore size of 1-2 nm, a surface area of 300-350 m²/g, a permeability for water of 25-520 g/m²-h and a selectivity for water of 1-400 in water/alcohol mixtures at 250° C.